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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte WILLIAM ROBERT HANSON, HOWARD WILLIAM
STANLEY, YOON KEAN WONG

Appeal 2008-2479
Application 09/989,273
Technology Center 2800

Decided: August 14, 2008

Before TERRY J. OWENS, KAREN M. HASTINGS, and
MICHAEL P. COLAIANNI, *Administrative Patent Judges*.

OWENS, *Administrative Patent Judge*.

DECISION ON APPEAL

The Appellants appeal from a rejection of claims 1-4, 6-19, 22 and 24-27, which are all of the pending claims.

THE INVENTION

The Appellants claim a display system, a lighting system for a display, and a method for producing an image on a display. Claim 1 is illustrative:

1. A lighting system for a display, comprising;
a light source providing invisible light having a wavelength in a spectrum not visible to the human eye;
a reflective layer having phosphorescent coatings in a substrate, the phosphorescent coated surface reflecting the invisible light from the light source and converting the invisible light into visible light visible to the human eye; and
a display layer in which pixels of the display layer may be altered by applying an electrical charge to the display layer in a controlled manner, the display layer being illuminated by the visible light from the reflective layer,
wherein the light source is located below the display layer opposite the side of the display layer viewed by the human eye.

THE REFERENCES

| | | |
|-----------|-----------------|----------------------|
| Baur | US 4,142,781 | Mar. 6, 1979 |
| Yamashita | US 4,599,537 | Jul. 8, 1986 |
| Vossler | US 5,856,819 | Jan. 5, 1999 |
| Chen | US 5,982,092 | Nov. 9, 1999 |
| Kim | US 6,204,902 B1 | Mar. 20, 2001 |
| Lueder | US 6,559,918 B1 | May 6, 2003 |
| | | (filed Apr. 2, 1999) |

THE REJECTIONS

The claims stand rejected under 35 U.S.C. § 103 as follows: claims 1, 2, 4 and 6-9 over Chen in view of Baur; claim 3 over Chen in view of Baur and Vossler; claims 10, 11 and 13-16 over Chen in view of Vossler and

Yamashita;¹ claim 12 over Chen in view of Vossler and Lueder; and claims 17-19, 22 and 24-27 over Chen in view of Baur and Kim.

OPINION

We affirm the Examiner's rejections.

Rejection of claims 1, 2, 4 and 6-9
over Chen in view of Baur

The Appellants argue only claim 1, which is the sole independent claim among claims 1, 2, 4 and 6-9 (App. Br. 6-11). We therefore limit our discussion to that claim. Claims 2, 4 and 6-9 stand or fall with claim 1, *See* 37 C.F.R. § 41.37(c)(1)(vii) (2007).

Chen discloses a light emitting diode (LED) planar light source that can be used as a backlight source for a liquid crystal display (col. 1, ll. 10-20). The light source comprises a diffusion plate (20), a light conductive plate (10), a fluorescent pigment layer (50) capable of changing the wavelength of light emitted by a luminescent crystal (40), and a reflection layer (30) (col. 2, ll. 53-56; col. 3, ll. 1-3). Chen teaches that “[t]he light reflection layer **30** is provided around the surrounding surface and on the bottom surface of the light conductive plate **10**” (col. 2, ll. 63-65), “the fluorescent pigment layer is formed under the light conductive plate” (col. 3, ll. 57-58), and “[t]he fluorescent pigment layer **50** is interposed between the light conductive plate **10** and the light reflection layer **30**” (col. 2, l. 66 – col. 3, l. 1).

¹ The Examiner does not rely upon Yamashita in the rejection of claims 10 and 13-16 (Ans. 6-9, 19).

Baur discloses an electro-optical display device comprising a phosphorescent particle-containing layer (25) between a fluorescent plate (1a) and a high pass filter which can be a second fluorescent plate (21) (col. 1, ll. 7-11; col. 9, ll. 7-10). Light that is not absorbed by fluorescent plate 1a or the high pass filter is absorbed by the phosphorescent particle-containing layer to cause emission of phosphorescent light (18) which can additionally excite fluorescent plate 1a and cause the display to afterglow in the dark (col. 9, ll. 12-20).

The Appellants argue that Chen's light source does not have a phosphorescent-coated reflective layer (App. Br. 8; Reply Br. 2-3). Chen's fluorescent pigment layer 50, the Appellants argue, is a separate layer, not a coating. *See id.*

During patent prosecution, claims are to be given their broadest reasonable interpretation consistent with the Specification, as the claim language would have been read by one of ordinary skill in the art in view of the Specification. *See In re Zletz*, 893 F.2d 319, 321 (Fed. Cir. 1989); *In re Sneed*, 710 F.2d 1544, 1548 (Fed. Cir. 1983).

The claim 1 limitation "a reflective layer having phosphorescent coatings in a substrate" was added by amendment (filed Jan. 3, 2003). The Appellants' original Specification discloses that the Appellants' layers are layered on top of one another on a substrate such as a printed circuit board to form a layered display (Spec. ¶ 0020). The Specification does not disclose how the layers are formed. Thus, the Specification does not indicate that the layers are anything other than conventional coatings. Hence, the broadest reasonable interpretation of "reflective layer" in view of the Appellants' Specification includes "reflective coating". Accordingly, the broadest

reasonable interpretation of “a reflective layer having phosphorescent coatings in a substrate” includes a substrate having thereon a reflective coating and phosphorescent coatings.

Chen’s LED layers appear to be coatings. Particularly, the expression “the fluorescent pigment layer is formed under the light conductive plate” (col. 3, ll. 57-58) indicates that the formation of the fluorescent pigment layer takes place under the light conductive plate, i.e., the fluorescent pigment layer is coated onto the light conductive plate. Accordingly, the disclosure that “fluorescent pigment layer **50** is interposed between the light conductive plate **10** and the light reflection layer **30**” (col. 2, l. 67 – col. 3, l. 1) indicates that the fluorescent pigment layer is a coating between the light conductive plate and a light reflection coating. The Appellants have not set forth what they believe one of ordinary skill in the art would have considered the specific form of Chen’s fluorescent pigment layer and light reflection layer to be if they are not coatings.

The Examiner concludes that it would have been obvious to one of ordinary skill in the art to include Baur’s phosphorescent particle-containing layer among Chen’s layers to provide the benefits disclosed by Baur of additionally exciting the fluorescent layer and providing afterglow in the dark (col. 9, ll. 7-20) (Ans. 5).

The Appellants argue that the Examiner has not established that Baur’s phosphorescent particle-containing layer is a coating or that it is a single layer that both reflects invisible light and converts the invisible light into visible light (App. Br. 10; Reply Br. 4).

As pointed out above, the Appellant’s Specification indicates that the broadest reasonable interpretation of the claim 1 phrase “a reflective layer

having phosphorescent coatings in a substrate” includes a substrate having thereon a reflective coating and phosphorescent coatings. Hence, contrary to the Appellants’ argument, the Specification does not indicate that the reflective layer and phosphorescent coatings have to be a single layer coating. Moreover, even the claim 1 language itself, “a reflective layer having phosphorescent coatings”, indicates that the reflective layer and the phosphorescent coatings are not a single layer. Chen’s light reflection layer reflects light, and Baur’s phosphorescent particle-containing layer, as well as Chen’s fluorescent pigment layer, would convert Chen’s invisible light to visible light.

The Appellants argue, without any supporting explanation, that Baur’s disclosure that phosphorescent particle-containing layer 25 has no optical contact with fluorescent plate 1a is contrary to the teachings of Chen (Reply Br. 5).

In view of Baur’s disclosure that light which strikes from the front and is not absorbed by fluorescent plate 1a, and light which strikes from the rear and is not absorbed by the high pass filter, is absorbed in phosphorescing layer 25 (col. 9, ll. 12-19), it is not apparent what Baur means by “no optical contact” between phosphorescing layer 25 and fluorescent plate 1a.

Regardless, one of ordinary skill in the art, through no more than ordinary creativity, would have included Baur’s phosphorescent particle-containing layer with Chen’s fluorescent pigment layer to provide the benefits disclosed by Baur of additionally exciting the fluorescent pigment layer and providing afterglow in the dark (col. 9, ll. 17-20). *See KSR Int’l. Co. v. Teleflex Inc.*, 127 S. Ct. 1727, 1741 (2007) (In making an obviousness determination one

“can take account of the inferences and creative steps that a person of ordinary skill in the art would employ”).

For the above reasons we are not convinced of reversible error in the rejection of claim 1 or claims 2, 4 and 6-9 that stand or fall therewith.

Rejections of claims 3, 4, 10-19, 22 and 24-27

Regarding the rejections of claims 3, 4, 10-19, 22 and 24-27, the Appellants rely upon the same arguments regarding Chen or the combination of Chen and Baur discussed above with respect to the rejection of claim 1 (App. Br. 11-19; Reply Br. 5-7). We are not persuaded by those arguments for the reasons given above with respect to that rejection.

DECISION

The rejections under 35 U.S.C. § 103 of claims 1, 2, 4 and 6-9 over Chen in view of Baur, claim 3 over Chen in view of Baur and Vossler, claims 10, 11 and 13-16 over Chen in view of Vossler and Yamashita, claim 12 over Chen in view of Vossler and Lueder, and claims 17-19, 22 and 24-27 over Chen in view of Baur and Kim are affirmed.

AFFIRMED

tc

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